Drinking Water Quality

Community Systems- Background

New Jersey's water resources are vitally important to the state's drinking-water supply. About 1.2 billion gallons of potable water are used in New Jersey each day, with 88 percent of the state's population receiving its drinking water from public water systems, while the remainder is supplied by private wells. About half the state's population receives its drinking water from surface water, the rest from groundwater (For information on additional groundwater quality, see Ambient Groundwater Quality Monitoring Network in this Environmental Trends series.)

During the last few years, DEP has become increasingly concerned about naturally occurring radiological contaminants in drinking water systems. Community water systems, which are public systems that serve homes, have been testing their water for radiological contaminants since the late 1970s. In 1996, New Jersey began to use a modified analytical technique, which allowed for analysis of radiological samples within 48 hours of collection and found elevated levels of radiological contaminants in drinking-water samples. The contamination has been attributed to naturally occurring, short-lived radioisotopes, such as radium 224, which is most often found in the Kirkwood-Cohansey aquifer system of southern New Jersey.

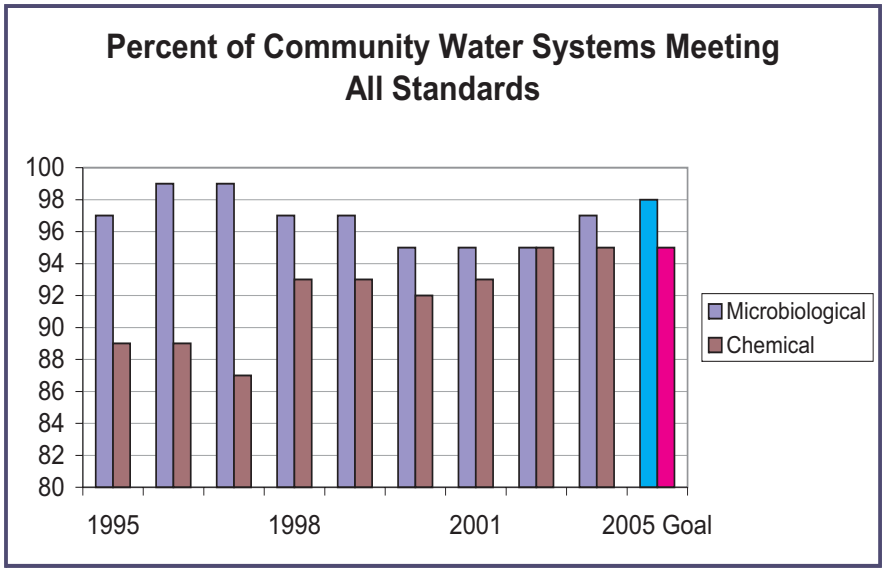
Under this new testing method, sample results from several community water systems were higher than the drinking water standards. These systems are taking the necessary steps, including public notification and inclusion in purveyors' Consumer Confidence Reports, to safeguard the public and are either removing the radiological contaminants from the water systems through additional treatment or using other sources of drinking water.

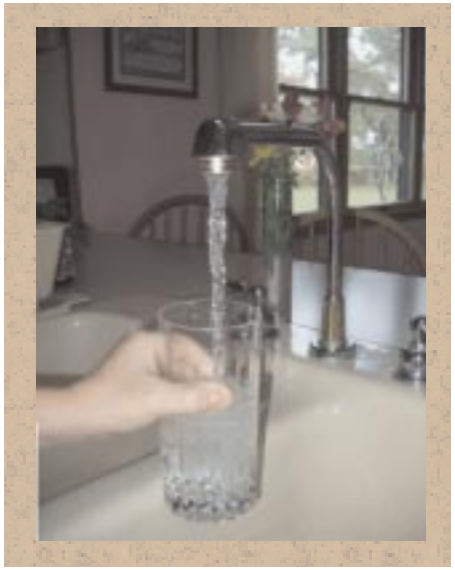
In addition, all states are required to establish a Source Water Assessment Program (SWAP). New Jersey's SWAP Plan includes determining the source water assessment area of each ground and surface water source of public drinking water, inventorying the potential contamination sources within the source water assessment area, determining the public water system source's susceptibility to regulated contaminants, and incorporating public education and participation.

All Community Water Systems have been assessed and their source water assessment reports are available through the SWAP website. It is anticipated that the Noncommunity Water System assessments will be completed by June 1, 2005. The information gained from source water assessments will encourage protection of water sources, provide information for watershed assessment and planning, and improve land use planning.

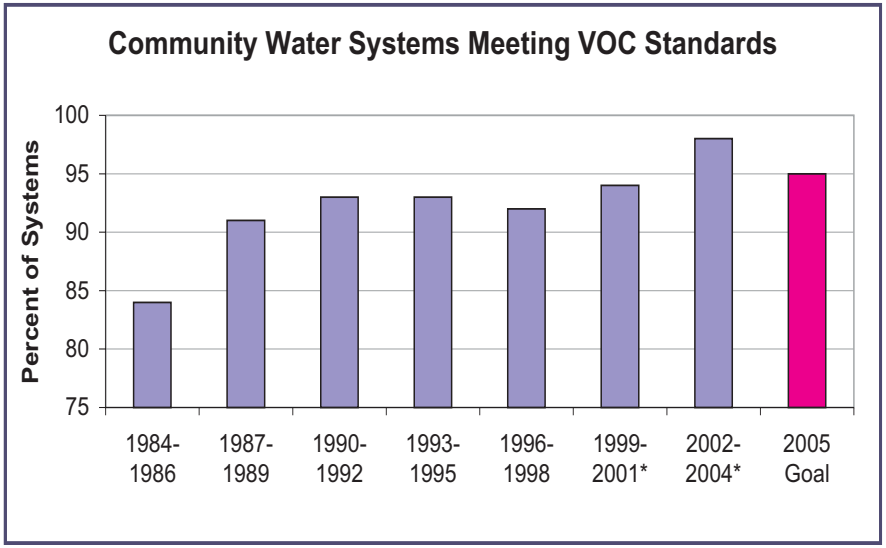
Trends

Since 1995, 95 percent or more of community water systems in New Jersey have met the microbiological standards each year, and compliance with all chemical standards has improved from 89 to 95 percent. (See figures below).





Water quality, with respect to VOCs, has improved over time. By 2003, only 2 percent of community water systems had a sample that exceeded any VOC standard, (see figures below) which is well above the national average, and exceeds the EPA's 2005 goal of 95 percent. Only one system received a violation because elevated concentrations exceeded allowable limits for an extended period of time. Systems with a sample result above the standard are required to increase monitoring for VOCs.



Outlook and Implications

Drinking water is a direct source of potential human exposure to microbiological and chemical contaminants. To protect public health, both EPA and DEP have set standards for approximately 90 contaminants. Public water suppliers must monitor for these regulated contaminants based on the type of water system and the source of the drinking water. The goal of the Bureau of Safe Drinking Water is that by 2005, 98 percent of all community water systems meet all microbiological standards, and 95 percent of all community water systems meet all chemical standards.

New Jersey has focused particular attention on reducing exposure to VOCs, including solvents, degreasers and components of gasoline. In 1983, the New Jersey Legislature gave DEP the authority to require semiannual monitoring and responsibility of developing the standards, or Maximum Contaminant Levels (MCLs), for these contaminants in community water systems. Today, there are MCLs for 26 VOCs in New Jersey.

Private Wells - Background

Pursuant to the recently-enacted Private Well Testing Act, New Jersey is the only state in the nation that requires mandatory testing of private well systems upon the sale or rental of properties. This includes residences supplied by domestic wells. The fundamental goal of the Private Well Testing Act (PWTA) is to ensure that purchasers and lessees of properties served by private potable wells are fully aware of the quality of the untreated drinking water sources prior to sale or lease.

The New Jersey Private Well Testing Act was signed into law in March 2001 and became effective in September 2002. State lawmakers were prompted to pass the PWTA because of concern about potential health impacts related to consumption from private wells. The DEP estimates that 12 percent of New Jersey residents receive their drinking water from private wells. The water samples must be collected and analyzed by a laboratory certified by the DEP. Testing costs are estimated to range from $450 to $650.

At closing of sale both buyer and seller must certify in writing that they have received a written copy of the test results. People receive their well test results on a standardized form, which also provides them with information about options for correcting any well-contamination problems.

Laboratories performing drinking water analyses are required to submit all sampling data to DEP electronically. The law requires DEP to report all test failures to county health officials, or in some cases, municipal health officials, within five days. The test results are kept confidential by law, although state and local officials may release summaries of the information submitted. The department's regulations require that "raw" or untreated water be tested. The purpose of this requirement is to provide information on the quality of the well water prior to treatment. In some cases, this differs from the water quality actually being consumed at the tap.

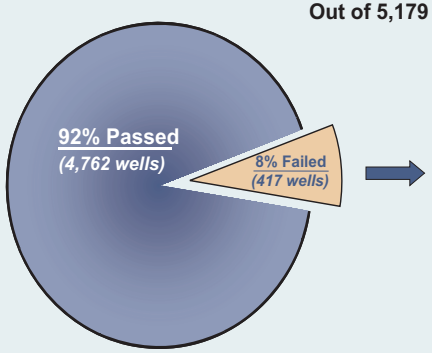
Under the PWTA, the water is tested for both primary and secondary contaminants. Primary standards, which are health–based, include total coliform, nitrates, lead, gross alpha particle activity, and all volatile organic chemicals (VOCs) for which maximum contaminant levels have been established by state regulations. In addition, testing for arsenic must be done in 10 northern and central counties considered high risk, and testing for mercury must be done in nine southern and shore counties. Samples also are analyzed for three secondary standards: pH, manganese and iron. These tests measure the natural water-quality characteristics of the ground water.

Status and Trends

In March 2004, the DEP released a summary of the first six months of data submitted to the PWTA program. The report provides a summary of the water test results by municipality and county.

Based on the results submitted to DEP during the first six months, 92 percent of the 5,179 wells met all the primary standards. Eight percent, or 417 wells, failed for one or more of the primary standards. Statewide, nitrate and fecal coliform were the two most commonly found contaminants in concentrations above a primary drinking water standard; in 3.7 percent (189) and 1.8 percent (92) of the 5,179 wells tested, respectively. Through the Piedmont area of the state, where testing for arsenic is required, 3.7 percent (72 out of 1,928) of the wells exceeded 10 ppb. Only 1.4 percent (71 out of 5,179) of the wells sampled statewide exceeded any of the 26 standards for volatile organic compounds. Concentrations of mercury above the standard were reported in 14 out of 2,379 wells tested (0.6 percent).

Statewide Results
Summary of Private Well Testing Act Results for Primary Drinking Water Standards
September 2002 - March 2003
Out of 5,179 Wells



Contaminant	# Wells failed/ Total# Wells sampled	% of Wells that Failed
Nitrates	189 out of 5179	3.7%
Arsenic*	72 out of 1928	3.7%
Fecal Coliform	92 out of 5179	1.8%
VOCs	71 out of 5179	1.4%
Mercury **	14 out of 2,379	0.6%

* Monitored in 10 Northern Counties
** Monitored in 9 Southern Counties

More Information

For more information on community systems, see the following sites:
www.nj.gov/dep/watersupply/quality.htm
www.epa.gov/region02/water/drinkingwater/
http://www.state.nj.us/dep/swap/

For more information on private wells, visit the DEP's Web site www.state.nj.us/dep/dsr/dw/dw.htm or www.nj.gov/dep/pwta.

References

Much of the information on community systems in this report was provided by the Bureau of Safe Drinking Water and the DEP publication "New Jersey's Environment 2000" and the Private Well Testing Act Program publication "Initial Well Test Results for September 2002 - March 2003."

Much of the information on private wells in this report was provided by the Private Well Testing Act Program's Report on the Initial Well Test Results for September 2002 to March 2003.